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ABSTRACT

Spanish American plural formation is discussed in relation to attempts that have been made to write a set of phonological rules that would correctly predict the Spanish plural using a combination of phonological rules and word structure constraints. A brief synopsis is presented of why previous attempts to predict the plural are in error. Phonological rules that work for Peninsular Spanish do not work for Latin American Spanish because of a different phonemic inventory. The solution using a combination of phonological rules and word structure constraints optimally minimizes the exceptions, correctly predicts dialect variations, and accounts for all the data without referring to abstract underlying forms or without using extrinsically ordered, opaque, or absolute neutralization rules. (SW)

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Defying Analysis: Spanish-American Plural Formation by Thomas L. Romens

A definite problem in dealing with the plural formation in Latin America (and in Spain) is the amount of social and geographical dialect variation. In spite of this there are generalizations that should not be missed. The dialect variations represent only slight changes in the rules, basically generalizations and simplifications. Examples of the variance of plural forms can be seen under the heading "variations" on the data sheets.

There have been numerous attempts to write a set of phonological rules that would correctly predict the Spanish plural. The rules that work for Peninsular Spanish do not, however, work for Latin American Spanish because of a different phonemic inventory. All cases of /θ/ in Spain have become /s/ in Latin America. When this phenomenon occurs in a crucial environment with regard to plural formation I have marked it on the data sheet with a parenthetical (Spain).

The attempts that have come closest to solving the problem have had to posit abstract underlying forms for many nouns and adjectives to be able to account for the data. Others have not resorted to such means, but have ignored some of the data when presenting their solution. When all the data is accounted for it becomes obvious that these solutions are incomplete, or do not work at all.

There is a viable solution, however, using a combination of phonological rules and word structure constraints. This solution optimally minimizes the exceptions while correctly accounting for the data. It also correctly predicts dialect variations. This is done without extrensically ordered, opaque, nor absolute neutralization rules, and without referring to abstract underlying forms for the nouns and adjectives that undergo

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plural formation.

I should like to begin with a brief synopsis of why the previous attempts are in error. Saporta (1965) was not trying to do anything more than summarize the data. He provides no explanation for "why" the plural form varies from word to word and indeed furnishes no insight into the phenomena involved. Nor did he intend to. He presents, however, the following schema: (Rule 1 on the rules sheet)

$$Pl \longrightarrow \begin{cases} s \;/\; \begin{Bmatrix} \check{v} \\ e \end{Bmatrix}_ \\ \emptyset \;/\; \check{v}s_ \\ es \;/\; \begin{Bmatrix} c \\ \acute{v} \end{Bmatrix}_ \end{cases} \qquad (\text{where } \acute{v} \neq e)$$

His formulation states that the plural morpheme is /s/ following an unstressed vowel or stressed /e/, it is ∅ following an /v̌ s/, and it is /es/ following any consonant or stressed vowel where that stressed vowel does not equal /e/.

Foley (1967) uses Saporta's formulation as a point of departure and refines it. This is done by collapsing part of the rule so that it reads. (See rule 2 on the rules sheet)

$$Pl \longrightarrow \begin{cases} s \;/\; \check{v}_ \\ \emptyset \;/\; \check{v}s_ \\ es \;/\; \begin{Bmatrix} c \\ \acute{v} \end{Bmatrix}_ \end{cases}$$

The plural morpheme is /s/ following an unstressed vowel, it is ∅ following any /vs/, and it is /es/ following any consonant or stressed vowel.

Another rule, a vowel contraction rule which is independently motivated, will degeminate the two e's. (Rule 2b)

This can be done if one accepts the degemination rule for /e + e/. There are examples and counterexamples to this argument but one thing that cannot be denied is that the rule is opaque. There do exist cases of /e+ e/ where the two "e's" do not shorten. This is the case with many verb forms. "Leer" provides the best example because its familiar 'you'

singular /le+ e+ s/ forms a minimal pair with the third person plural indirect object form /les/. The two would never be confused by a native speaker (they are pronounced lees and les respectively) thus proving that /e+e/ does not degeminate in all environments. It may be possible to condition the "e" shortening to nouns and adjectives, i.e., morphologize the rule. The pluralization rule is then further simplified by Foley by positing an underlying /e/ at the end of many words ending in consonants. But as of yet no one has been able to provide an adequate rule to show when that same /e/ is apocopated in the singular form. Harris's (1969) solution is also based on this underlying /e/ and fails to the same extent as Foley's for exactly the same reason. The solution provided by Foley and Harris is outlined by rules 2b, 3a, 3b, and 4 on the rules sheet. Properly ordered it consists of the following: 1) /e/ in the underlying representation of many nouns and adjectives. 2) pluralization: pl → /s/ (rule 4a) 3) Apocope of /e/ in certain environments (rule 3b) 4) Contraction (rule 4b) and 5) Shortening (rule 2b).

This affects the data in the following manner:

Data A. simply add an /s/ for the plural.

Data B. rubí/hindú have a final/e/ in their underlying representation, this /e/ is apocopated in the singular form. cafe has an underlying /e/ as well, but this is shortened by rule 2b. dominó/papá have no underlying /e/ in standard Latin American Spanish, but do have an underlying /e/ in some dialects.

Data C. all have underlying /e/ and add /s/ to form plural. /e/ is apocopated in the singular form by rule 3b.

Data D. facil and lapis have underlying /e/ which is apocopated in the singular form. Dosis, lunes, and lapis (in Southern Chile) have

no underlying /e/. They form their plurals by means of rules 4a and 4b.

Data E. Accent changes unaccounted for by both Harris and Foley. This also includes the case of "caracter" from Data D.

There are many problems with this analysis. In group A their apocope rule (3b) should delete the final /e/ in héroe but it doesn't. In group B the underlying /e/ seems quite ad hoc, especially when one considers the dialect variations. This is the same problem that exists in group D. The strongest argument against this approach, however, lies with the conflicting examples of clase and mes. Harris would posit a /ss/ in the word "clase" so that the apocope would be blocked. He would not do so for "mes" so that the apocope would apply. However, this conflicts with another part of his analysis. Harris relates common nouns to their adjectival forms by positing one underlying representation and then having certain phonological rules apply in the case of the noun to give the proper surface representation. Thus /noche/ "night" and /nocturno/ "nocturnal" both come from the same form, a form which has underlying /ct/. To derive "noche" a rule is added to convert /ct/ to /ch/. In the case of the word "mes" there exists an adjectival form "mensual" (monthly). Therefore, both "mes" and "mensual" must be derived from an underlying form which contains /ns/. Therefore, "mes" should not undergo apocope because it has an underlying consonant cluster. The end result ofpositing the final "e" is only a complication of the grammar by abstracting underlying forms in an ad hoc manner.

Saltarelli (1970) questions the Foley/Harris analysis for reasons similar to those I have already stated and then suggests that an epenthesis

theory is more highly valued. He states that there are two rules (rules 5a & b).

Plural $\rightarrow$ /s/ Epenthesis $\emptyset \rightarrow$ /e/ / $\left\{ \begin{matrix} \# \\ c, \check{v} \end{matrix} \right\}$ ____ s $\left\{ \begin{matrix} c \\ \# \end{matrix} \right\}$

The plural morpheme is /s/ /e/ is inserted word initially before an /s/ that preceeds another consonant, and word finally when /s/ is preceded by a consonant or a stressed vowel. This shows the plural formation epenthesis to be a mirror image of protethis in Spanish. It also leaves a residue of badly formed plurals unexplained. Saltarelli's analysis creates "papaes" as the standard plural, luneses, dosises etc. He fails to address the critical area of words whose singular form ends in /s/, (as lapis illustrates) or in /θ/ in Spain. He does offer the shortening explanation for the plural of "cafe" /cafe+es/. He does not examine the problem of change of stress as is illustrated by group E and "carácter" from group D.

Hooper (1974) provides the following solution: (Rule 6) Pl→/v̌+s/ Condition: If a vowel is present in the singular that vowel fills the v position in the plural morpheme. If no /v/ is present the "e" is inserted before the /s/ ("e" because it is the minimum vowel in Spanish). If the singular ends in a stressed vowel the unstressed vowel must be added. If the singular ends in /v̌+s/ nothing is added. Since Hooper is working within the framework of Natural Generative Phonology she has no way of giving a convincing argument as to why /cafe/ degeminates in the plural and the double "e" in the verbs "leer" (to read) and "creer" (to believe) do not. Natural Generative Phonology does not allow opaque rules according to Hooper (1976). Nor can she explain the plural of /lapis/ except for the fact that it ends in /θ/ in Spain. This does not explain the facts because other words ending in /θ/ (those ending in stressed vowel plus /s/ or /θ/) are unchanged. She also offers no

explanation of the dialect variation for Southern Chile where /lapis/ pluralizes as /lapis/. With her solution one is left wondering "why?".

Hooper and Terell (1976), while presenting more complete data than the others, do not solve the problems that I have pointed out with regard to Hooper (1974).

As I stated it is possible to formulate a viable explanatory analysis, one that accounts for the data and the dialect variations. The plural morpheme for Spanish is /s/ (rule 7).

There exists a word structure constraint in Spanish which states that a word may not end in a high stressed vowel, morpheme boundary, and a consonant. If this situation should come about during the course of a derivation, an /e/ is epenthesized between the high stressed vowel and the consonant (rule 8a). Other dialects may have a more general rule (8b). The /e/ is inserted between any stressed vowel and a consonant. Still other dialects may not have this constraint at all.

Rules 7 and 8a give the correct derivation for all the data in groups A and B. Rule 8b (a generalization) accounts for the papaes/dominoes variations that are found in some dialects. We are confronted in this dialect with the problem of the shortening of the /e/. A rule could be devised that specifically excluded /e/ from the environment but this would seem to be quite ad hoc. Therefore, we are left with deciding whether we prefer a degemination rule that is seemingly opaque, or an adhoc rule. To the extent that we accept the opaque rule as the solution we cannot argue against others who have proposed this as part of their solution. Another alternative is possibly available, that is to restrict the degimination rule morphologically so as to make it apply only to nouns and adjectives.

Further support for morphological conditioning will be given later.

Dialects with no constraint (perhaps the one mentioned by Harris 1969, the data is incomplete) would form the plural of /hindu/ and /rubi/ by simply adding /s/. (Harris gives the hindus plural, but does not mention what occurs with words ending in stressed /i/). If such a dialect does in fact exist it would mean a simplification of the grammar.

The general tendency is, therefore, the one correctly predicted by Hooper (1974), plural $\longrightarrow$ /v̆+s/. This preferred word structure is also seen with those words ending in any stressed vowel plus a consonant (group C). Here another epenthesis rule would apply to give barriles, compases, rapases and rapaθes in Spain. We will tentatively state this as a word structure constraint of the form: if a word ends in a stressed vowel and two consonants then an /e/ is inserted between the two consonants (Rule 9). This rule accounts for the data presented in group C.

Most of the forms that end in an unstressed vowel plus a consonant (group D) create unacceptable word final clusters with the addition of the plural morpheme. Therefore, we must posit another word structure constraint (Rule 10a).

If a word ends in two consonants then /e/ must be inserted between them. We must also then posit a contraction rule for the /s/ to account for the fact that the plurals of "lunes" and "dosis" are not luneses and dosises.

Looking back at the last two word structure constraints we see that they are remarkably similar. They can in fact be reduced to the form: /e/ is epenthesized between two word final consonants (Rule 11b). The degemination rule is then written so that two identical consonants con-

tract word finally following an unstressed vowel (11a). This rule must apply before 11b so as not to epenthesize an /e/ between two final"s's". Because of proper inclusion precedence (in accordance with Koutsoudas, Sanders, and Noll (1974)) the degemination does not need to be extrensically ordered before the epenthesis rule.

This rule correctly predicts the plurals for all words ending in consonants, while identifying the difference between words ending in a stressed vowel plus /s/ and an unstressed vowel plus /s/. The derivations would be as follows: The /s/ plural morpheme is added to the words listed in both groups C & D. In the cases of /dosis/ and /lunes/ in Group D the /s+s/ is degeminated because it follows an unstressed vowel. In the cases of rapás, ciprés, bos, and mes, in Group C, the /s+s/ is preceded by a stressed vowel and therefore does not meet the structural description for 11a. Therefore, these words, like the others in Groups C and D, must undergo /e/ epenthesis.

There now remain only a few unaccounted for words. Those ending in /v̌+θ/ "lapiθ" have their plurals correctly predicted for peninsular Spanish as the two final consonants are not identical; but not for Latin American Spanish where as I have mentioned all /θ/ have become /s/. There are only three words like "lápis" in the Spanish language, the other two being "cális" (chalice) and "alféres" (ensign). These words meet the structural description for the contraction rule (11a) but this rule does not apply. This is more satisfactory than a rule which would have the epenthesis apply when the structural description was not met. (That being the solution others have proposed with reference to these three words. Hooper, 1974), Hooper & Terell (1976) and others.)

The solution I present also correctly explains the case of the Southern Chilean dialect where the plural of lapis is /lapis/. In this dialect the word "lapis" groups with other words ending in /v̆+s/, ergo it undergoes degemination. If we hypothesize that this is historically more recent it can be seen as a simplification of an exception to the degemination rule. This would be more highly valued than Harris's probable approach which would be that /lapis/ had lost its final underlying /e/.

Among the residuals are three other types. Those words which are considered foreign follow the foreign plural (via English for the most part). This class of words contains many sports terms, hit, set, roun(d) as well as words like fiord, soviet. All of these violate the second word structure constraint as none of them undergo epenthesis. "Menú" violates the first word structure constraint, the proper Spanish term being "lista". Other terms optionally (according to dialect) violage this constraint: club (clubes or clups), albun (albumes or albuns). In both cases I would hypothesize that the first form is the Spanishized version while the second form is an immitation of the foreign plural.

A third group is rarely mentioned; those whose plural form changes in stress assignment (a shift in stress in the stem) in the plural. Here there are two subgroups. Carácter becomes caractéres retaining its penultimate stress with the addition of the extra syllable. Many other words, like "fasil" of Group D, do not. As stated by Narváez (1978) this is probably because antipenultimate stress is the least favored pattern in Spanish (from statistics presented by Hooper & Terell this stress pattern is seen on less than 5% of Spanish words).

Régimen and espécimen are representatives of the second subgroup (Group E). These words have antipenultimate stress in the singular form and

must undergo /e/ epenthesis and therefore add another syllable in the plural. But there is another word structure constraint in Spanish which states that no word may have preantipenultimate stress. Therefore, the stress for these two words must change with the addition of another syllable at the end of the word. This also explains why the word hipérbaton cannot be hipérbatones . An erudite word it has the very irregular form hiperbatos in the plural.

It should be noted that Spanish verbs with attached enclitics may have preantipenultimate stress (límpiemelo, clean it for me, póntemelo, put it on for me). These structures could form part of an argument to support the claim that word structure constraints and phonological rules like the case of "e" shortening are morphologically conditioned.

The analysis I have presented here is superior to any other presented so far in as much as it accounts for all the data. No ad hoc rules, nor abstract underlying forms are necessary. It is also much more explanatory in terms of what happens in crucial environments such as words that end in /v̆+s/, these words differ from those ending in /v̆+θ/ in Spain and, therefore, their plurals are different. The Spanish forms follow the rules I have presented. The Latin American form /lapis/ does not because of a change in phonemic inventory. The example from Southern Chile shows that the plural formation has adjusted to account for this change in phonemic inventory. It eliminates an exception to a rule. This is much better than having epenthesis apply to /lapis/ in the standard dialect, when /lapis/ does not meet the structural description. Also my analysis shows all recent dialect variations to be simplification of, or elimination of existing rules in accordance with Kiparesky (1968).

Defying Analysis: Spanish-American Plural formation

Data

	Singular	Plural	Variation(s)	Gloss
A.	V			
	pelotári	pelotáris		"jai -alai player"
	tríbu	tríbus		"tribe"
	mésa	mésas		"table"
	sapáto	sapátos		"shoe"
	θapáto (Spain)	θapátos		"shoe"
	kʎye	kʎyes		"street"
	kláse	kláses		"class"
	éroe	éroes		"hero"
B.	V			
	rubí	rubíes	rubís?	"ruby"
	indú	indúes	indús	"hindu"
	papá	papás	papáes/papáses	"dad"
	dominó	dominós	dominóes	"domino"
	kafé	kafés		"coffee"
C.	VC			
	baríl	baríles		"barrel"
	birtúd	birtúdes		"virtue"
	kolór	kolóres		"color"
	rapás	rapáses		"boy"
	rapáθ (Spain)	rapáθes		"boy"
	rasón	rasónes		"reason"
	raθón (Spain)	raθónes		"reason"
	bós	bóses		"voice"
	bóθ (Spain)	bóθes		"voice"
	més	méses		"month"
D.	VC			
	fásil	fásiles		"easy"
	faθil (Spain)	faθiles		"easy"
	dósis	dósis		"dose"
	lúnes	lúnes		"Monday"
	lápis	lápises	lápis (So. Chile)	"pencil"
	lápiθ (Spain)	lápiθes		"pencil"
	karákter	karaktéres		"character"
E.	CVCVC			
	réhimen	rehímenes		"regime"
	espésimen	espesímenes		"specimen"
	ipérbaton	ipérbatos	iperbatónes ?	"hyperbaton"
F.	Borrowed words			
	sét	séts		
	róun(d)	róuns		
	fiórd	fiórds		
	soviét	soviéts	soviés	
	menú	menús		
	álbun	álbumes	álbuns	
	klúb	klúbes	klúps/klús	

Rules

1. Pl $\longrightarrow$ $\begin{cases} s / \begin{Bmatrix} \check{v} \\ e \end{Bmatrix} ___ \\ \emptyset / \check{v}s ___ \\ es / \begin{Bmatrix} c \\ \acute{v} \end{Bmatrix} ___ \end{cases}$ (where $\acute{v} \neq e$)

2a. Pl $\longrightarrow$ $\begin{cases} \check{c} / \check{v} ___ \\ \emptyset / \check{v}s ___ \\ es / \begin{Bmatrix} c \\ \acute{v} \end{Bmatrix} ___ \end{cases}$

b. $V_iV_i \longrightarrow V_i$ (independently motivated) (shortening)

3a. Pl $\longrightarrow$ $\begin{cases} s / v \\ \emptyset / \check{v}s \end{cases}$

("e" in the plural is part of the underlying stem)

b. $\check{e} \longrightarrow \emptyset$ / V (C) ____# Apocope

4a. Pl $\longrightarrow$ /s/

b. $C_iC_i \longrightarrow C_i$ contraction

5a. Pl $\longrightarrow$ /s/

b. $\emptyset \longrightarrow$ /e/ / $\begin{Bmatrix} \# \\ C, V \end{Bmatrix}$ ____s $\begin{Bmatrix} C \\ \# \end{Bmatrix}$ epenthesis

6. Pl $\longrightarrow$ / $\check{v}$+s/ Condition: if no unstressed vowel is present /e/ is inserted before the /s/.

7. Pl $\longrightarrow$ /s/

8. Word structure constraint a. if $\begin{Bmatrix} \acute{V} \\ \text{-hi} \end{Bmatrix}$+C # $\emptyset \longrightarrow e$ / $\begin{Bmatrix} \acute{V} \\ \text{-hi} \end{Bmatrix}$____+C#

b. if $\acute{V}$+C# $\emptyset \longrightarrow e$ / $\acute{V}$ ____+C#

9. Word structure constraint if $\acute{V}$CC# $\emptyset \longrightarrow e$/ $\acute{V}$C___C#

10a. Word structure constraint if CC# then $\emptyset \longrightarrow e$ / C___C#

b. $C_iC_i \longrightarrow C_i$

11. (Combines 9 and 10) a. $\check{V}C_iC_i\# \longrightarrow \check{V}C_i\#$ contraction

b. $\emptyset \longrightarrow e$ / C___C# epenthesis